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Two new fungi from Mexico: *Anaseptoidium* gen. nov. and *Cylindrosympodium sosae* sp. nov.

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Abstract — Two new anamorphic fungi are described and illustrated from a cloud forest in Mexico. *Anaseptoidium mycophilum* gen. & sp. nov. is distinguished by monoblastic, integrated, mostly determinate conidiogenous cells and solitary, 2–3-septate, oblong to cylindrical, pale brown conidia that usually remain attached after maturity. *Cylindrosympodium sosae* sp. nov. is characterized by cylindrical, mostly 4–5-septate, smooth, hyaline to subhyaline, sometimes guttulate conidia.

Key words — mycophilous fungi, systematics

During an investigation of microfungi on dead plant material in a cloud forest located in the private protected area "Agüita Fria", Veracruz, Mexico, two undescribed anamorphic fungi were collected. Individual samples of plant material were placed in paper and plastic bags taken to the laboratory and treated according to Castañeda (2005). Mounts were prepared in polyvinyl alcohol-glycerol (8 g in 100 ml of water, plus 5 ml of glycerol) and measurements made at a magnification of ×1000. Micrographs were obtained with a Nikon Eclipse E600 light microscope (Japan). One new genus and two new species are described below.

Taxonomy

Anaseptoidium R.F. Castañeda, Heredia & R.M. Arias, anam. gen. nov.
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Coloniae in substrato naturali effusae, reptantes, funiculosae, brunneae. Stomatopodia absentia. Conidiophora macronematosa interdum in cellulla conidiogenae reducta. Cellulae conidiogenae monoblasticae, determinatae. Conidia solitaria, acrogena, cylindrica usque ad oblonga, fimbriate, septata, pallide brunnea ad brunnea.

Type species: *Anaseptoidium mycophilum* R.F. Castañeda et al.

Etymology: Greek, *Ana-*, meaning upwards, back, and again; Latin, *septoidium*, referring to an anamorphic genus *Septoidium*.

Colonies on the natural substrate effuse, creeping, funiculose, brown. Mycelium superficial and immersed. Stomatopodia absent. Conidiophores macronematous, mononematous, erect, sometimes reduced to conidiogenous cells. Conidiogenous cells monoblastic, integrated, determinate. Conidial secession schizolytic. Conidia solitary, acrogenous, cylindrical to oblong, fimbriate, septate, smooth or verruculose, pale brown to brown. Teleomorph unknown.

Anaseptoidium mycophilum R.F. Castañeda, Heredia & R.M. Arias, **anam. sp. nov.** Figs. 1, 2

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Conidiophora macronematosa, 1–2-septata, 7.6–17.3 × 4.5–5.5 µm, interdum in cellula conidiogena reducta. Cellulae conidiogenae monoblasticae, 4–17 × 2–6.5 µm. Conidia acrogena, oblonga vel cylindrica, (1–)2(–3)-septata, plerumque eccentrica fimbriata ad basim, 12–17 × 4–6 µm.

Type: Mexico, Veracruz: Agüita Fria, 19°31′N 96°59′W, on synnemata of *Phaeoisaria clavulata* (Grove) E.W. Mason & S. Hughes, 8 February 2010, G. Heredia & V. Sosa (**Holotype**: XAL CB1696).

Etymology: Greek, *myco-*, meaning fungus, fungal, Greek, *-philum*, meaning loving.

Colonies on the natural substrate, effuse, creeping, funiculose, brown, mycophilic. Mycelium mostly superficial. Hyphae septate, branched, 2–4 µm diam., smooth, pale brown, ascending on the synnematal conidiomata of the host. Stomatopodia absent. Conidiophores macronematous, mononematous, erect or prostrate, straight, simple, 1–2-septate, smooth, 7.6–17.3 × 4.5–5.5 µm, very pale brown, sometimes reduced to conidiogenous cells. Conidiogenous cells monoblastic, terminal, determinate, integrated, pale brown, 4–17 × 2–6.5 µm. Conidial secession schizolytic. Conidia solitary, acrogenous, oblong to cylindrical, (1–)2(–3)-septate, mostly eccentric and fimbriate at the base, rounded at the apex, smooth, 12–17 × 4–6 µm, very pale brown, dry, usually remaining attached to the conidiogenous loci after maturity. Teleomorph unknown.

Note: *Anaseptoidium* resembles *Septoidium* G. Arnaud, which differs in monoblastic, percurrently proliferating, annellate conidiogenous cells and stomatopodia formed regularly by the assimilative hyphae on the substrate. Most species are plant pathogenic (Baker 1955, Ellis 1971, 1976). Esquivel

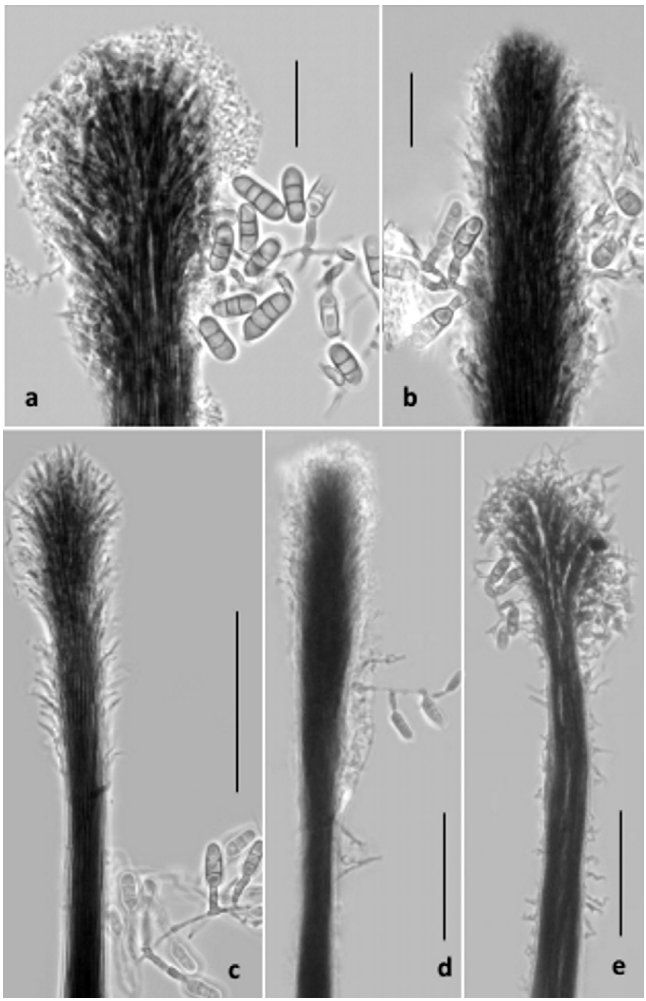

Fig. 1. *Anaseptoidium mycophilum* (ex holotype XAL CB1696, on synnemata of *Phaeoisaria clavulata*). a–e. Conidiophores, conidiogenous cell and conidia. a–b. Scale bars = 20 μm, c–e scale bars = 50 μm.

(2011), who illustrated several conidiogenous events observed in the *Septoidium* anamorph of *Parodiopsis hurae* (G. Arnaud) R.E.D. Baker & W.T. Dale, confirmed the enteroblastic percurrent proliferations of the conidiogenous cells in *Septoidium*.

In *Anaseptoidium,* the secession of each conidium is schizolytic, but the outer and inner wall layers do not separate simultaneously as in most related fungi. The outer wall layer(s) breaks first, and many conidia are observed attached

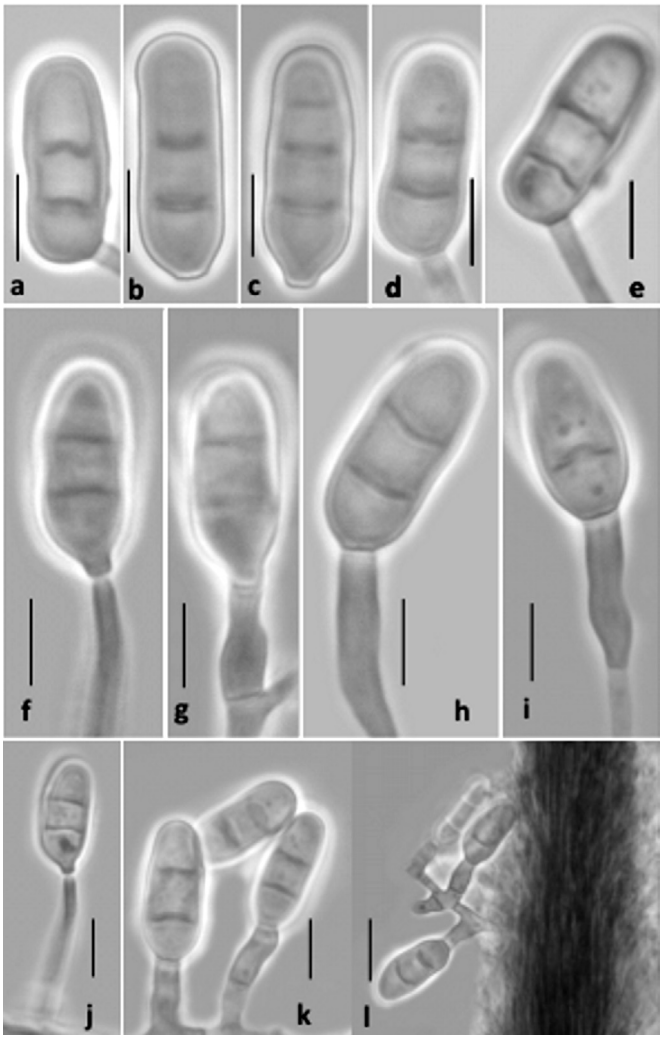

Fig. 2. *Anaseptoidium mycophilum* (ex holotype XAL CB1696). a–i. Conidiogenous cells and conidia. Scale bars = 5 μm, j–l. Conidiophores, conidiogenous cells and conidia. Scale bars = 10 μm.

only by the inner wall layer(s) as can be confirmed by the pale or colorless pigmentation of the conidiogenous cell apex just below each attached conidium (Fig. 2 a–k). The inner wall layer(s) may separate independently of the outer wall separation(s). As a result, conidia are seen somewhat separated (1–2 μm) from the outer wall layers while still attached on each conidiogenous locus.

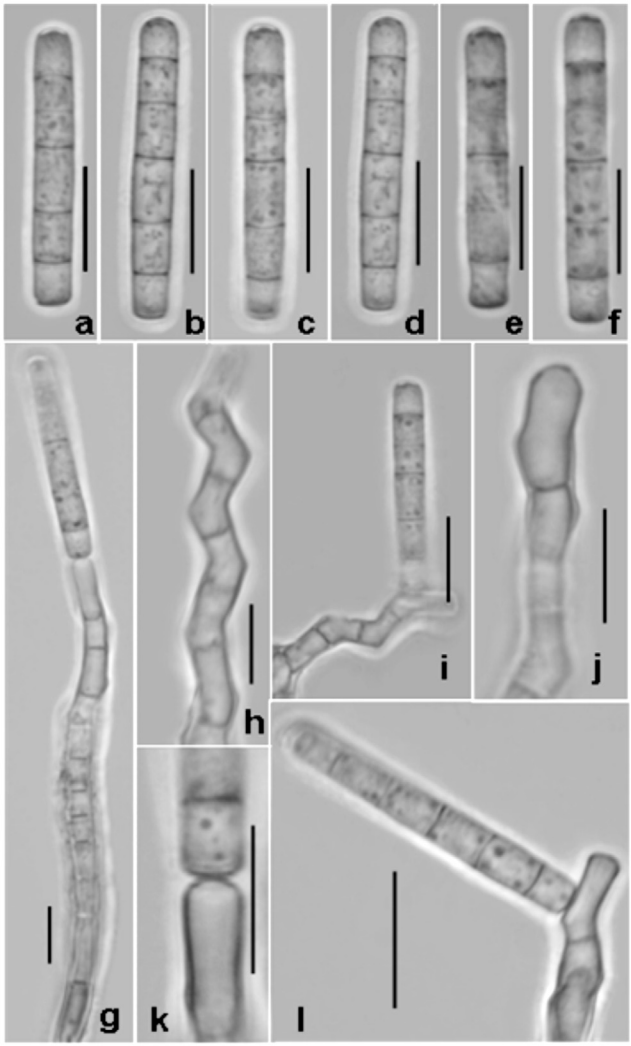

Fig. 3. *Cylindrosympodium sosae* (ex holotype XAL CB1699). a–f. Conidia, g. Conidiophore, conidiogenous cells and conidium. h–l. Conidiogenous cells and conidia. Scale bars = 10 μm.

Cylindrosympodium sosae R.F. Castañeda, Heredia & R.M. Arias, **anam. sp. nov.** Figs. 3, 4

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Ad Cylindrosympodii africani *differt in conidiophora macronematosa, 6–15-septata, 71–106 × 5–10 μm, leprosa vel verruculosa ad basim et conidia 4–5-septata, 25.5–28.5 × 4–4.5 μm.*

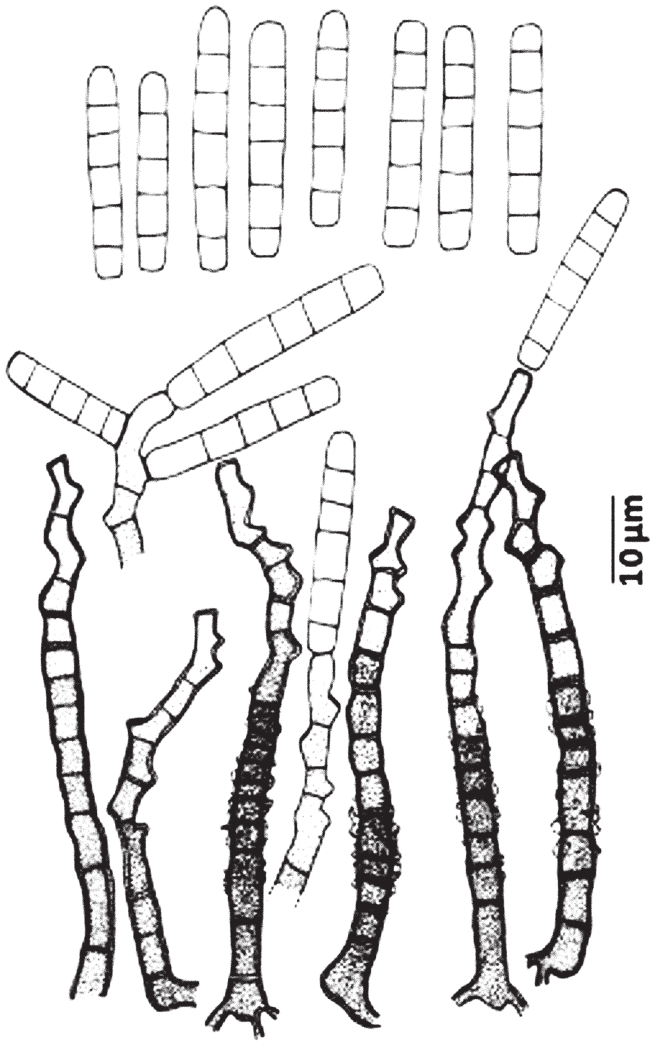

Fig. 4. *Cylindrosympodium sosae* (ex holotype XAL CB1699). Conidiophores, conidiogenous cells and conidia.

Type: Mexico. Veracruz: Agüita Fria, 19°31′N 96°59′W, on decaying leaf of *Liquidambar styraciflua* L. (*Hamamelidaceae*), 8 February 2010, V. Sosa (**Holotype**: XAL CB1699).

Etymology: Latin, *sosae*, in honor to Dr. Vinicio Sosa Fernández (INECOL, Mexico) who collected and kindly provided the specimen.

Colonies on the natural substrate effuse, pilose, yellowish brown or reddish brown. Mycelium mostly immersed. Hyphae septate, branched, smooth or verruculose, yellowish brown or brown, 1.5–3 µm diam. Conidiophores macronematous, mononematous, erect, straight or flexuous, simple, 6–15-septate, verruculose to leprous near the base and smooth towards the apex, 71–106 × 5–10 µm, yellowish brown or reddish brown below, hyaline or subhyaline towards the apex. Conidiogenous cells polyblastic, integrated, intercalary and terminal, subhyaline or hyaline, 8–15 × 3–4.5 µm, geniculate, indeterminate, with several holoblastic sympodial proliferations and flattened conidiogenous loci. Conidial secession schizolytic. Conidia solitary, acropleurogenous, cylindrical, truncate at the base, 4–5-septate, smooth, hyaline or subhyaline, 25.5–28.5 × 4–4.5 µm, sometimes guttulate, dry. Teleomorph unknown.

Note: *Cylindrosympodium* is distinguished by "flat-topped denticles" on conidiogenous cells that form solitary, cylindrical, septate, hyaline conidia (Castañeda-Ruiz & Kendrick 1990, 1991, Paulus et al. 2003, Marvanová & Laichmanová 2007, Crous et al. 2007). *Cylindrosympodium sosae* strongly resembles *C. africanum* (Morgan-Jones et al.) Marvanová (Marvanová & Laichmanová 2007), which is easily differentiated by its brown or pale brown smooth conidiophores and 3–4-septate 31–33 × 2 µm conidia (Morgan-Jones et al. 1983).

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